PIPS Laser Endo harnesses the power of the Lightwalker

Dual wavelength, all-tissue Er:YAG & Nd:YAG laser cleanses canals

PIPS™ Laser Endo (PIPS™) harnesses the power of the proprietary Lightwalker Er:YAG laser, both exclusively available from Technology4Medicine (www.T4Med.com), to create photoacoustic shock waves within the cleaning and debriding solutions in the canal.

The containment of the shockwaves thoroughly streams these solutions threedimensionally through the entire canal system, enhancing their effectiveness. The canals and subcanals are left clean and the dentinal tubules are free of smear layer. It is a well-established fact that different dental procedures require different laser wavelengths. Wavelength is important to clinical outcomes because specific body tissues interact in different ways depending on the particular laser source.

The Lightwalker is a true dual wavelength system. With the choice of two complementary wavelengths, LightWalker is the “universal” laser. Practically all laser-assisted dental treatments can be performed with either the most highly absorbed Er:YAG laser wavelength or the selectively absorbed, deeper penetrating Nd:YAG laser wavelength.

There are many advantages to using the Lightwalker and its proprietary PHAST (Photo Active Systems Technology) and PIPS (Photon Induced Photoacoustic Streaming) for endodontic procedures:

- First is the entire root canal and subcanal system is more effectively cleaned and debrided than with traditional instrument-only techniques, reducing the risk of re-infection.
- The minimally invasive nature of PIPS preserves more tooth endoskeleton than traditional instrument techniques because filing can be limited to as small as ISO #20 or #25, maintaining more post-restoration tooth strength.
- Sub-ablative power levels eliminate the risks of thermal damage, ledging and demineralization inherent to other laser endodontic methods.
- Because the PIPS tip is inserted only into the coronal opening and not into the canal, there is no risk of tip breakage from curved canals or unwanted apical extrusion of chemical irrigants, as is possible with standard laser endodontic methods.
- Less filing time and less soaking time for chemical agents can significantly reduce treatment time while being more effective.

The SEM images below demonstrate the effectiveness of PHAST Laser Endo.

Fig. 1. The Lightwalker dual wavelength, all-tissue Er:YAG & Nd:YAG laser. (Photos/Provided by Technology4Medicine)
Fig. 2. Internal surface after conventional instrumentation, without PIPS.
Fig. 3. Clean dentin surface achieved with the PIPS root canal treatment.
Fig. 4. Higher magnification after PIPS. Collagen fibers are intact, with no thermal damage.
Fig. 5. Clean dentinal tubules after PIPS.